

The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

Paper No. 21

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte KLAUS-DIETER NITTEL
and KARL-HEINZ NUSS

Appeal No. 1998-3059
Application 08/554,288

ON BRIEF

Before OWENS, TIMM, and DELMENDO, *Administrative Patent Judges*.

OWENS, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal from the examiner's final rejection of claims 1-5, which are all of the claims remaining in the application.

THE INVENTION

The appellants claim a process for the electroless deposition of copper onto an iron or iron alloy surface using a solution containing magnesium as well as copper and hydrogen

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ions. The appellants indicate that including magnesium in the solution causes the copper coatings to be uniform and to have good adhesion (specification, page 3). Claim 1 is illustrative:

1. A process for the electroless deposition of a copper coating on an iron or iron alloy surface by means of a solution containing copper and hydrogen ions, comprising: contacting the surface with a solution comprising 5 to 30 g/l Cu and 0.2 to 5 g/l Mg.

THE REFERENCES

Schwartz 1969	3,460,953	Aug. 12,
Knaster et al. (Knaster) 1986	4,563,216	Jan. 7,

THE REJECTION

Claims 1-5 stand rejected under 35 U.S.C. § 103 as being unpatentable over the combined teachings of Knaster and Schwartz.

OPINION

We reverse the aforementioned rejection. We need to address only claim 1, which is the sole independent claim.

Knaster discloses an electroless plating process using a solution containing about 10 to about 30 g/l of cupric ions

(abstract). Knaster does not disclose that the solution contains magnesium.

Schwartz discloses electrolytes for an immersion electrolytic plating process and teaches that numerous classes of chemical compounds, including magnesium salts, have been found to enhance, improve and brighten the deposited coating (col. 1, lines 22-23; col. 2, lines 4-6). The preferred concentration of the enhancing or modifying agent is 0.1-5 wt% (col. 5, lines 70-75), and the preferred concentration of a magnesium chloride enhancing or modifying agent is 0.25-1.5 wt% (col. 6, lines 9-10).

The examiner does not argue that one of ordinary skill in the art would have combined teachings directed toward electroless plating with teachings directed toward electrolytic plating. The examiner's argument is that although Schwartz states that he discloses electrolytes for immersion electrolytic plating, he actually discloses solutions for electroless plating (answer, page 4).

The examiner raises two points in support of his argument. The first is that Schwartz does not mention an

applied current (answer, page 4). Schwartz, however, states that "[t]he actual steps in employing in [sic] immersion electroplating by the use of the new electrolytes of this invention are those generally used in the art" (col. 6, lines 35-37). This disclosure and the disclosure that "[t]his invention relates to immersion electrolytic plating, and more particularly to electrolytes therefor" (col. 1, lines 22-23), indicate that Schwartz discloses immersion electrolytic plating electrolytes.

The second point is that the examiner presented calculations (advisory action mailed March 17, 1997, paper no. 13) which show that certain reductions of copper, nickel and tin have a positive reduction potential. According to the examiner, see *id.*, these positive potentials, together with Knaster's teaching (col. 1, lines 15-25) that an electric current is not required for a displacement of iron by copper using a solution which, like Schwartz's solution (col. 2, lines 40-43), contains an acid, indicate that Schwartz discloses an electroless process. Even if the examiner's calculations are correct, the examiner's argument based thereon is not persuasive because the examiner has not

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established that the solutions containing copper, nickel and tin, upon which the calculations are based, cannot be used in an electrolytic plating process. Also, the examiner has not established that Schwartz's process involves displacing iron by copper. For these reasons and because Schwartz specifically states that he discloses electrolytes for immersion electrolytic plating, the preponderance of the evidence weighs in favor of a finding that Schwartz's disclosure is directed toward electroplating rather than electroless plating.

For the above reasons, we conclude that the examiner has not carried the burden of establishing a *prima facie* case of obviousness of the appellants' claimed invention.

DECISION

The rejection of claims 1-5 under 35 U.S.C. § 103 over the combined teachings of Knaster and Schwartz is reversed.

REVERSED

TERRY J. OWENS)

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Administrative Patent Judge)	
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CATHERINE TIMM)	
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ROMULO H. DELMENDO)	
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